

WESTERN PLANT STUDIES. V

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SISYRINCHIUM IDAHOENSE Bickn., var. **birameum** (Piper), n. comb.—*S. birameum* Piper Contrib. Nat. Herb. 11:203. 1906.—This variety may be distinguished ordinarily by the presence on the plant of one or more branched stems. Professor J. K. HENRY of Vancouver has kindly sent us specimens of the species transitional to the variety. These are deposited in the Gray Herbarium under his no. 9056 and were secured June 27, 1916, near Alberni, Vancouver Island. He wrote regarding them "all growing together and sometimes in the same bunch."

Sisyrinchium boreale (Bickn.), n. comb.—*Hydastylus borealis* Bickn. Bull. Torr. Bot. Club 27:378. 1900.—BICKNELL was surely justified in segregating this small-flowered inhabitant of inland lakes from the truly maritime large-flowered *S. californicum*. *H. brachypus* Bickn., *loc. cit.* 379, however, seems to be only a state of *S. californicum* that is unworthy any formal recognition.

Brodiaea coronaria (Salisb.), n. comb.—*Hookera coronaria* Salisb. Parad. Lond. *pl.* 2. 98. 1801; *B. grandiflora* Smith, Trans. Linn. Soc. 10: *pl.* 1. 1811.—SMITH cites SALISBURY'S name as a synonym, and comparison of the plates shows that both authors had in mind the same plant.

Allium scissum, n. n.—*A. incisum* Nels. and Macbr. Bot. Gaz. 56:470. 1913; not *A. incisum* Fomine in Monit. Jard. Bot. Tiflis 14:52. 1909.

Trifolium Leibergii, n. sp.—Stems flexuous, 8–15 cm. high, 1–several from the summit of a woody taproot: petioles, leaves, and peduncles canescent with a dense covering of fine crinkly hairs: petioles 1–2.5 cm. long; leaflets obovate or subrotund, 1–1.5 cm. long, about 1 cm. broad, spinulose-serrate above the entire cuneate base: peduncles 1.5–2 cm. long; heads 1.5–2 cm. in diameter; flowers reflexed in age, distinctly pedicellate: calyx pubescent like the rest of the plant but the hairs longer and tangled; lobes linear-lanceolate, setaceous-acuminate at tip, nearly equal, thrice the

length of the tube, 3-4 mm. long: corolla purple; standard minutely crenulate at the rounded apex; tip of wings obtusish: pod pubescent like leaves; seeds 2.

This clover is most nearly related to *T. Lemmonii* Wats., but the remarkably long calyx teeth and the very different leaves and pubescence mark it as distinct. It is equally at variance, in these and other characters, with *T. gymnocarpon* Nutt. Miss McDERMOTT (N. Am. Trif. 194. 1910) regards *T. Lemmonii* as a variety of the latter. We are not certain as to the justification of this disposition, but these species are certainly more closely related to each other than to *T. Leibergii*. We have had the pleasure of designating many of LEIBERG'S specimens as types. It seems fitting, therefore, to call this unique clover *T. Leibergii*, based on his no. 2344 (as represented in the Gray Herbarium) from serpentine dykes near Dewey, Oregon, June 21, 1896.

CLARKIA

In a former contribution (BOT. GAZ. 61:31-32. 1916) we expressed the opinion that the genera *Phaeostoma*, *Godetia*, and *Clarkia* should be united, because when all the species concerned are considered it is possible to establish an unbroken series on the same characters relied upon to maintain the genera as distinct. JEPSON in his careful revision of *Godetia* (Univ. Calif. Publ. Bot. 2:319-320. 1907) pointed out its technical weakness and, after citing several standard works in which the genus is recognized, he wrote "in favor of its retention it may be urged that the genus forms a group of species which is very compact, that it does not include doubtful species, and that its ecological characteristics, habitats, time of flowering, and pollination devices are exceedingly uniform." In our judgment the only argument advanced here which will be affected in any way by the reduction of *Godetia* to *Clarkia* is the statement that "the genus forms a group of species which is very compact." This will not be truly applicable until in reality these genera are merged. As they now stand, it is impossible to "key out" certain species, even in ENGLER and PRANTL'S *Die natürlichen Pflanzenfamilien*, a work cited by JEPSON as an argument in favor of the maintenance of *Godetia*. When united with *Clarkia*, however, we have a genus which, considered in its entirety, represents as definite and distinctive a unit as there is in the family. JEPSON seems to have realized how unreliable and artificial the generic

bounds in this group are, but apparently felt our hesitancy (BOT. GAZ. 61:32. 1916) in discarding the well known name *Godetia*. In a discussion (*loc. cit.* 352) of *G. delicata* Abrams,¹ he states, "on account of the clawed petals, hairy ring at orifice of calyx tube, and smoothish capsules, this species serves to emphasize in a marked manner the close relation between *Godetia* and *Clarkia*. It is most nearly allied to *Clarkia rhomboidea*." In this connection it is interesting to note that another species, *G. biloba*,² which is one of the connecting links between the genera (cf. JEPSON, *loc. cit.* 319, and NELSON and MACBRIDE, *loc. cit.* 32), has been found by Mrs. BRANDEGEE (JEPSON, *loc. cit.* 323) to have hybridized with *Clarkia elegans*.

It is unfortunate that JEPSON did not make his critical revision more inclusive. In the citation of specimens particularly he seems to have eliminated collections from the Northwest. This makes the determinations of material from north of California more difficult than it should be. PIPER and BEATTIE's treatment in their recently published *Flora of the Northwest Coast* is helpful, but even it includes only 7 of the 13 species credited to the region. Accordingly it has seemed desirable in making the necessary transfers from *Godetia* to *Clarkia* to give, at the same time, a brief synopsis of the species.

Godetia tenella (Cav.) Steud. is not included; even the nature of the type seems to be very obscure (cf. JEPSON, *loc. cit.* 348). HOWELL'S *Fl. N. W. Am.* 235 contains *G. epilobioides* (Nutt.) Wats.³ This distinctive species is confined to southern California (JEPSON, *loc. cit.* 343). Specimens so labeled from Oregon and Washington are usually referable to *G. gracilis* Piper. HOWELL does not include *G. grandiflora* Lindl.,⁴ although the species was described from plants grown from supposedly Oregon seed. It seems to be known, however, only from the coastal region of central California. JEPSON (*loc. cit.* 348) reduces *Oenothera Whitneyi*

¹ *Clarkia delicata* (Abrams), n. comb.—*Godetia delicata* Abrams, Bull. Torr. Bot. Club 32:539. 1905.

² *Clarkia biloba* (Durand), n. comb.—*Oenothera biloba* Durand, Pl. Pratt. 87. 1855; *Godetia biloba* (Durand) Wats. Bot. Cal. 1:231. 1876.

³ *Clarkia epilobioides* (Nutt.), n. comb.—*Oenothera epilobioides* Nutt. in T. and G. Fl. N. Am. 1:511. 1840; *Godetia epilobioides* (Nutt.) Wats. Bot. Cal. 1:231. 1876.

⁴ *Clarkia superba*, n. n.—*Godetia grandiflora* Lindl. Bot. Reg. 27 Misc. 61. 1841, not *C. grandiflora* (F. and M.) Greene, Fl. Franciscana 2:223. 1891.

Gray⁵ to this species, but this is an error. LINDLEY's description of *G. grandiflora* reads "fructu lineari 4-sulcato tereti pubescenti." This description accords perfectly with the fruit of all collections we have seen. The capsules of GRAY's species, on the other hand, are far from linear, being thick and short, only 2 cm. long. JEPSON's description (*loc. cit.* 347, 348) of *G. grandiflora* applies rather to this species, and the specimens cited by him are referable here. In the following outline of the northwestern members of the genus *Clarkia* we have not cited specimens of the well known species.

- Petals lobed, clawed 1. *C. pulchella*
 Petals entire or at least not lobed, sessile, or short clawed
 Stigmas linear; calyx lobes united and turned to one side in anthesis; capsules pedicelled or sessile
 Anthers 4-8 mm. long, more or less hooked or curved after dehiscence
 Buds usually erect; capsules sessile or subsessile, short beaked, teretish 2. *C. amoena*
 Buds nodding; capsules long pedicelled and long beaked, 8-ribbed 3. *C. arcuata*
 Anthers 3 mm. long, fertile to the tip, not becoming curved 4. *C. caurina*
 Stigmas short and broad; calyx lobes becoming free (except in no. 7); capsules sessile
 Capsules terete or nearly so and not prominently ribbed; flowers spicately scattered
 Leaves oblong to ovate 5. *C. rhomboidea*
 Leaves linear
 Style only half as long as stamens; ovary densely white puberulent 6. *C. Romanzovii*
 Style nearly as long as stamens; ovary slightly puberulent 7. *C. gracilis*
 Capsules distinctly 4-sided or prominently ribbed; flowers (except in no. 8) in compact spikes or dense clusters
 Flowers scattered, the spikes usually long; petals 5-12 mm. long 8. *C. quadrivulnera*
 Flowers in dense clusters or if not the petals much larger
 Stems erect, not flattened
 Capsules pubescent; petals 1-3.5 cm. long
 Style as long as or longer than the stamens; capsules puberulent 9. *C. viminea*
 Style shorter than the long stamens; capsules usually shaggy-pubescent 10. *C. purpurea*
 Capsules typically glabrous; petals less than 1.5 cm. long 11. *C. Arnottii*
 Stems decumbent-ascending, flattened above 12. *C. decumbens*

⁵ *Clarkia Whitneyi* (Gray), n. comb.—*Oenothera Whitneyi* Gray, Proc. Amer. Acad. 7:340, 400. 1868.

1. *Clarkia pulchella* Pursh, Fl. 1:260. 1814.—It is not necessary to cite specimens of this beautiful and distinctive species. Its range is greater, however, than generally indicated in the books. Although most frequent from British Columbia to western Idaho and California, it crosses Montana and has been secured in the Black Hills of South Dakota. Often cultivated in the eastern states, it is of spasmodic occurrence there as a weed in newly seeded grounds, etc.

2. *Clarkia amoena* (Lehm.), n. comb.—*Oenothera amoena* Lehm. Ind. Sem. Hort. Hamb. 8. 1821.—This species and the next one are well marked by the character of the anthers curving after dehiscence. There is some variation in this, however, the cells sometimes being fertile to the tip and then tardily recoiling. Two noteworthy, but in themselves variable, color forms occur. These may be known as forma **concolor** (Jeps.), n. comb.—*Godetia amoena*, var. *concolor* Jeps. Fl. Mid. 334. 1901; and forma **Lindleyi** (Dougl.), n. comb.—*O. Lindleyi* Dougl. Hook. Bot. Mag. pl. 2832. 1828; *G. amoena*, var. *Lindleyi* Jeps. Univ. Cal. Publ. Bot. 2:329. 1907. The latter is distinguished by the presence of a dark central blotch in the petals.

Coastal region, British Columbia to Monterey County, California.—OREGON: Willamette River below Portland, June 10, 1902, *Sheldon*, S. 10864; Calapooya Creek, Douglas County, July 24, 1899, *Barber* 75 and 76.—WASHINGTON: Tacoma, 1894, *Miss J. H. Van Rensselaer*; Sinclair's Inlet, Kitsap County, July 1895, *Piper*; near Chenoweth, Skamania County, June 16, 1892, *Suksdorf* 2129; between Olympia and Gate City, Thurston County, July 15, 1898, *A. A. and E. Gertrude Heller* 4051 (form with anthers fertile to apex).

3. *Clarkia arcuata* (Kell.), n. comb.—*Oenothera arcuata* Kell. Proc. Cal. Acad. 1:58. 1855; *Godetia hispidula* Wats. Proc. Am. Acad. 8:599. 1873; *G. arcuata* (Kell.) Jeps. Univ. Cal. Publ. Bot. 2:335. 1907.—HOWELL, Fl. N. W. Am. 235. 1900, credits this species to the Northwest, and he is followed by FRYE and RIGG, Elem. Fl. N. W. 159. 1914. JEPSON (*loc. cit.* 335 and 322), however, restricts its range to central California, and we have seen no specimens from Oregon.

4. *Clarkia caurina* (Abrams), n. comb.—*Godetia caurina* Abrams Contrib. Nat. Herb. 11:410. 1906.—Vancouver Island to western Washington.

5. *CLARKIA RHOMBOIDEA* Dougl. in Hook. Fl. Bor. Am. 1:214. 1833.—*Phaeostoma rhomboidea* (Dougl.) A. Nels. BOT. GAZ. 52:267. 1911.—Eastern Washington and Oregon, and adjacent Idaho to Utah, Nevada, and California.

6. *Clarkia Romanzovii* (Ledeb.), n. comb.—*Oenothera Romanzovii* Ledeb. ex Hornem. Hort. Hofn. Suppl. 1:133. 1819; *Godetia Romanzovii* (Ledeb.) Spach, Hist. Veg. Phan. 4:390. 1835.—This species has not been collected since originally by CHAMISSO on “the Northwest Coast,” unless a specimen by ELMER from Port Angeles should be referred to it, as suggested by PIPER and BEATTIE (Fl. N. W. Coast 251. 1915). We have not seen this collection; there are, however, two authentic specimens of this species in the Gray Herbarium. One is from the “Hort. Soc. Lond.” and the other is from the “Jardin des Plantes, 1837” and belonged to the Gray Herbarium. Both specimens are well preserved and agree with JEPSON’S description (Univ. Cal. Publ. Bot. 2:349. 1907). PIPER and BEATTIE’S diagnosis is misleading, however, as the plants are not “densely white puberulent throughout” but only so on the young parts, as emphasized by JEPSON, where it is indeed “close and feltlike.” Since the species has retained its salient characteristics for generations in cultivation (see JEPSON, *loc. cit.* 321), its rediscovery in a native state is highly probable. Accordingly it seems proper to give it recognition.

7. *Clarkia gracilis* (Piper), n. comb.—*Godetia gracilis* Piper, Piper and Beattie’s Fl. N. W. Coast, 251. 1915.—Among our species this is nearest the next, from which it may be distinguished by the united calyx lobes, the tendency of the buds to nod, and the merely puberulent pods. This last character, however, is not dependable anywhere in the genus, as most species show great variation in this respect.

Vancouver Island to Oregon.—OREGON: Silverton, 1871, *Elihu Hall* 192; Tualitin, August 1880, *Joseph and Thomas J. Howell* 326; Grizzly Butte, Crook County, June 18, 1894, *Leiberg* 273.—WASHINGTON: Klickitat County, May 27, 1881, *Suksdorf* 23; Bingen, Klickitat County, May 18, 1906, *Suksdorf* 5606.—VANCOUVER ISLAND: Ball Mountain, June 17, 1907, *Rosendahl*, 1849.

8. *Clarkia quadrivulnera* (Dougl.), n. comb.—*Oenothera quadrivulnera* Dougl. in Lindl. Bot. Reg. pl. 1119. 1827; *Godetia*

quadrivulnera (Dougl.) Spach, Hist. Veg. Phan. 4:389. 1855; *G. bingenensis* Suksd. Deutsch. Bot. Monatss. 18:88. 1900.—Vancouver Island to California.

9. *Clarkia viminea* (Dougl.), n. comb.—*Oenothera viminea* Dougl. Bot. Mag. *pl.* 2873. 1828; *Godetia viminea* (Dougl.) Spach, Hist. Veg. Phan. 4:389. 1835.

Western Oregon to California.—OREGON: Grant's Pass, Josephine County, June 23, 1884, *Howell*; Multnomah County, June, 1877, *Howell* 138 and 139; Coast Ranges, July 1882, *Howell* and *Henderson*.

10. *Clarkia purpurea* (Curtis), n. comb.—*Oenothera purpurea* (Curtis) Bot. Mag. *pl.* 352. 1795; *Godetia purpurea* (Curtis) Don in Smith Hort. Britt., ed. 3, 237. 1839.—HOWELL (Fl. N. W. Am. 234. 1900) includes this species, but the specimens we have seen have come from California, and JEPSON in his revision cites no collections from Oregon. *G. albescens* Lindley, however, was described from plants grown from seeds secured in Oregon by DYER, and since it is probably a form of *C. purpurea*, as suggested by JEPSON (*loc. cit.* 351), it seems advisable to credit the latter species to our flora. The congested inflorescence and generally very shaggy pods are salient characters that ordinarily mark the species at once.

11. *Clarkia Arnottii* (T. and G.), n. comb.—*Oenothera Arnottii* T. and G. Fl. N. Am. 1:503. 1840; *Godetia Arnottii* (T. and G.) Walpers, Rep. 2:88. 1843.—This species may usually be recognized easily by the glabrous capsules, but sometimes these are puberulent as in the specimen by SHELDON. Mrs. BRANDEGEE has collected both forms growing together in California. PIPER and BEATTIE (Fl. N. W. Coast 252. 1915) have not indicated this variation.

Oregon to California.—OREGON: Umpqua Valley, June 24, 1887, *Howell* 703; Lower Albina, Portland, July 21, 1902, *Sheldon*, S. 10975.

12. *Clarkia decumbens* (Dougl.), n. comb.—*Godetia decumbens* Dougl. Bot. Mag. *pl.* 2889. 1829; *G. lepida* Lindl., Bot. Reg. *pl.* 1849. 1836, not *Howell*, Fl. N. W. Am. 234. 1900, which is probably *C. purpurea* or *C. Arnottii*.—JEPSON has shown (*loc. cit.* 350) that the seeds of this plant were first gathered in Oregon. The present status of the species is comparable to that of *C. Romanzovii*,

and according to JEPSON garden specimens display with fidelity the type characters. There is an indigenous specimen, however, in the Gray Herbarium which answers perfectly JEPSON'S characterization (*loc. cit.* 350). It bears no data other than "Wahlamet. Tolmie," and in GRAY'S handwriting the name "*Oenothera decumbens.*" The locality intended is, of course, the Willamette River, which at one time was spelled in several different ways, as, for example, "Wahlamutte" or "Wallamette."

Gentiana Covillei, n. sp.—Aspect of *G. calycosa* and *G. platypetala* to which it is closely related: stems 10–20 cm. high: leaves 6–10 pairs, at nodes gradually approximated upward, the last two pairs involucreting the solitary flower, broadly ovate to ovate-oblong, obtuse to sub-acute: calyx tube half as long as the corolla tube, doubly spathaceous in appearance, being split on opposite sides to the base, one valve bearing two and the other three small teeth, dark purplish-blue but membranous, the conspicuous veins terminating in the minute lance-cuspidate teeth: corolla dark blue, often with red or copper colored spots or blotches, 25–30 mm. long, broadly tubular-campanulate, the sub-oval or reniform lobes less than half as long as the tube, the margins obscurely crenulate-denticulate; the sinus plaits inconspicuous, being very low-triangular, about 1 mm. high: capsule as long as the corolla, stoutly oblong, obtuse, tapering at base to the short stout stipe: seeds 5 mm. long, very numerous, the body narrowly ovate, the excavated hilum sublateral and membranous apical appendage divergent.

In COVILLE'S Report upon the Funston Collection at Yakutat, no. 108, Disenchantment Bay, is referred to *G. platypetala* with some reservation. WALKER'S ample material in excellent condition is probably the same and shows that the calyx, the seeds, and the plaits are very different from *G. platypetala* as described by GRISEBACH. Since we are indebted to COVILLE'S notes and description (*Contrib. Nat. Herb.* 3:344. 1896) for the first accurate information concerning the species here named, we wish to dedicate it to him.

The type is *Walker* 935, secured at an altitude of 2000 ft. on grassy slopes above timberline, Mainland, Vixen Inlet, Alaska, August 20, 1915.

NEMOPHILA PEDUNCULATA Dougl., var. **sepulta** (Parish), n. comb.—*N. sepulta* Parish, *Erythea* 7:93. 1893; *N. Menziesii* H. and A. var. *minutiflora* Suksd. *Deutsch. Bot. Monatss.* 8:133.

1900; *N. sepulta* Parish, var. *minutiflora* (Suksd.) Brand, Pflanzenreich iv. 251:52. 1913.—BRAND distinguishes this plant from *N. pedunculata* by the fewer-seeded capsules. The latter species normally has 3–6 ovules to each placenta, although frequently only 2–4 seeds are matured. A specific instance in which this occurs is Baker 914 from King's Canyon, Nevada, upon which BRAND bases his *N. pedunculata*, var. *Bakeri* Brand (*loc. cit.* 54). Unfortunately, at least some specimens of this collection show only capsules that mature two seeds. This great variation in the number of seeds matured makes it extremely difficult to distinguish the 4-ovuled and 6–12-ovuled forms, since they differ in no other respect and occupy the same range. In fact, they may even grow in close proximity, as illustrated by Chandler 6039 and 6037, both from Isabel Creek, Santa Clara County, California, the first representing the typical form and the latter the fewer-ovuled var. *sepulta*. Sometimes the variety has slightly larger flowers that are more or less dotted with dark markings. This form also occurs throughout the range of the typical state and may be known as

NEMOPHILA PEDUNCULATA Dougl., var. **densa** (Howell), n. comb.—*N. densa* Howell, Fl. N. W. Am. 1:466. 1901; *N. sepulta* Parish, var. *densa* (Howell) Brand, *loc. cit.* 53; *N. nana* Eastw. Bull. Torr. Bot. Club 28:151. 1901; *N. alata* Eastw., *loc. cit.* 158; *N. reticulata* Suksd. West Amer. Sci. 14:32. 1903.

NEMOPHILA HETEROPHYLLA F. and M., var. **tenera** (Eastw.), n. comb.—*N. tenera* Eastw. Bull. Torr. Bot. Club 28:153. 1901; *N. heterophylla* F. and M., subvar. *tenera* (Eastw.) Brand, Pflanzenreich iv. 251:56. 1913; *N. nemorensis* Eastw., var. *glauca* (Eastw.) Brand, *loc. cit.* 57; *N. fallax* Eastw., *loc. cit.* 156.—CHANDLER (BOT. GAZ. 34:211. 1902), in his very practical revision of this genus of extremely variable plants, included in one "species" the forms listed, together with *N. nemorensis* Eastw., which BRAND (*loc. cit.* 56) retains as a species distinct from *N. heterophylla*, including in it all specimens of this group which have linear or minute corolla appendages. Specimens with broad, often prominent, appendages in the corolla he refers to *N. heterophylla*. In doing this, however, he fails to show that the degree of development of the scales in the corolla possesses any value for purposes of

practical classification; on the contrary, his reduction of named forms based on the presence or absence or shape or size of the scales in the corolla substantiates CHANDLER'S observations that the variations of these organs do not furnish suitable criteria for the determination of specific values. BRAND attempts to add weight to his maintenance of *N. nemorensis* by the following analysis of its range in relation to that of *N. heterophylla*: "Das Hauptverbreitungszentrum dieser Art scheint die Santa Clara County zu sein, während das der vorigen wohl die Mendocino County ist. In diesen beiden Counties kommt nur eine Art vor, während in den mittleren Counties beide sich finden." This argument, however, loses its force upon the realization that, although these counties are separated by a distance of over 100 miles, they are equally in the coastal region of the state and enjoy essentially identical ecological conditions. Moreover, all the specimens from this region are very similar in foliage and pubescence, but the material secured in the interior portion of the state and in Oregon is almost always more densely pubescent and usually displays a tendency to have bipinnatifid leaves. Accordingly it seems desirable to recognize this inland state form as an ecological variant of the coastal plant, letting one varietal designation include all the forms of the interior regardless of the development of the scales in the corolla. Since BRAND indicated his subvar. *tenera* as being "Die Form des südlichen Oregon und der Sierra Nevada," this name may be retained for these plants.

NEMOPHILA PARVIFLORA Dougl., var. AUSTINAE (Eastw.) Brand, Pflanzenreich iv. 251:55. 1913.—*N. explicata* Nels. and Macbr. BOT. GAZ. 55:377. 1913 should be referred here.

PENTSTEMON PERPULCHER A. Nels. BOT. GAZ. 52:273. 1911.—RYDBERG has expressed the opinion (Bull. Torr. Bot. Club 40:482. 1913) that *P. perpulcher* and *P. unilateralis* Rydb., loc. cit. 33:150. 1906, are the same. This assertion is strengthened by the statement that he has had the opportunity of comparing cotype material of the former with the type of the latter, "which is deposited in the herbarium of the New York Botanical Garden." This location of the type of *P. unilateralis* is rather puzzling in view of the fact that that species was said originally to be based on "*P. secundiflorus*

A. Gray, Syn. Fl. 2:263. 1878, not *P. secundiflorus* Benth." Inasmuch as GRAY wrote his description from a specimen or specimens deposited in the Gray Herbarium, one of these collections must logically be taken as the type of *P. unilateralis*, and not a specimen arbitrarily set up as such in another institution. But to return to the question of the relationship of these species. In the first place, the status of *P. unilateralis* seems to depend primarily upon the value of the presence or absence of hair on the sterile stamen as a specific character. Most recent authors, including RYDBERG in his *Flora of Colorado* (306. 1906), have relied upon this character as a means of separating groups of species, and ordinarily it is doubtless of value, especially when accompanied by other characters, including distribution. Now according to RYDBERG'S key (*Fl. Colo.*), *P. secundiflorus* Gray and, in fact, *P. secundiflorus* Benth. (see DC. Prod. 10:325. 1846), have the sterile stamen bearded at the tip, while in *P. unilateralis* Rydb. it is glabrous. But in *P. perpulcher* A. Nels. the sterile stamen is always bearded, yet RYDBERG would reduce the latter to his species. Obviously the reduction of *P. perpulcher* means the reduction of *P. unilateralis*, and indeed it is very doubtful whether the latter is specifically distinct from true *P. secundiflorus*, as the two forms grow in the same localities in Colorado and seem to possess no constant difference unless the sterile stamen character is reliable. But the case is much stronger for *P. perpulcher*. Both the other species are glabrous, the corollas average a good 2 cm. in length, and the plants range from Wyoming to northern New Mexico. *P. perpulcher* has only been collected in northwestern Idaho, but is frequent throughout that part of the state. Its foliage is decidedly puberulent and the corollas generally run less than 2 cm. in length. The puberulence is suggestive of *P. virgatus* Gray of New Mexico and Arizona, and in spite of the narrow leaves and glabrous sterile stamen of that species *P. perpulcher* is probably more nearly allied to it than to the Colorado species.

In BOT. GAZ. 55:382. 1913 we proposed var. *pandus* to take care of a plant in which the puberulence extends throughout. We did not notice, however, that the sterile stamen is glabrous. Altogether this plant seems to be related rather to *P. virgatus*, although

it is far removed geographically and has the broad leaves and the aspect of *P. perpulcher*. Since this plant differs in the same manner from its allies as the species previously discussed, it seems advisable to consider it as a species, although further knowledge may show these characters to be of no consequence taxonomically. But in accord with our present interpretation var. *pandus* must become

P. pandus (Nels. and Macbr.), n. comb.—*P. perpulcher* A. Nels. var. *pandus* Nels. and Macbr. BOT GAZ. 55:382. 1913.

Pentstemon Albrightii, A. Nels., n. sp.—Growing in small dense tufts, or often as single individuals, the crown or crowns furnished with coarse fibrous roots: leaves mostly basal, tufted on the crowns, glabrous, erect, 3–8 cm. long (including the petiole), spatulately oblanceolate, tapering gradually into the petiole, subacute or rounded at apex: stems one or more from each crown, scapose, the leaves if any remote and bractlike, sparsely floriferous for half their length or more, 1–2 dm. high, glabrous except in the inflorescence which becomes glandular pubescent upward: flowers in a more or less unilateral open raceme: calyx small, dark (greenish-purple), the lobes slightly unequal, as long or longer than the campanulate tube: corolla glabrous inside and out, a pale lavender, 9–13 mm. long, the tube slightly or not at all dilated, the limb short and abruptly spreading: sterile filament glabrous, slender, and much shorter than the others: anther cells confluent but not explanate: style as long as the corolla tube, stoutish, with small stigma.

This species is singular in its few-flowered, open, almost simple, secund racemose cyme. A few of its characters suggest the genus *Chionophila*, particularly its rosulate leaves, scapose stems, and greatly reduced sterile filament. The inflorescence is such, however, that the aspect of the plant as a whole is that of *Pentstemon*. The floral, fruit, and seed characters are also those of *Pentstemon*. It lacks those determinative characters of *Chionophila*, namely, the accrescent calyx, the marcescent corolla, and the large strongly angulate seeds.

It was first collected by J. F. MACBRIDE, in 1910, in the Trinity Lake region of Idaho. Then it was secured by Dr. C. C. ALBRIGHT, of Anaconda, Montana, in 1914, but both of these collections were inadequate and poor. It was tentatively named as given from ALBRIGHT'S material, but until now it has not seemed wise to publish. Fortunately, MACBRIDE and PAYSON found it again in Idaho and secured an abundance of excellent material. Their no. 3570, from the Josephine Lakes, Custer County, is the type. They also

secured it on Parker Mountain, in the same county, no. 3237. It seems to be alpine, coming in just at timberline, among the straggling, dwarfed, depressed remnants of the forest and persisting for some hundreds of feet higher.

HAPLOPAPPUS EXIMIUS Hall, Univ. Cal. Publ. 6:170. 1915.—It is refreshing to see technical papers so fully and painstakingly worked out as those by Professor H. M. HALL. He is so evidently fair that his arguments are unusually convincing. Nevertheless, in publishing this species he states so fully the differences that separate the *Haplopappus* segregates as to confirm (rather than otherwise) their validity. Those who take this view will think, therefore, that the name of the above plant should be **Tonestus eximius**, n. n.

Prenanthes hastata (Less.). n. n.—*Sonchus hastatus* Less. Linn. 6:99, 1831; *Nabalus alatus* Hook. Fl. Bor. Amer. 1:294. 1834.

CASTILLEJA MINIATA Dougl., var. **Dixonii** (Fernald), n. comb.—*C. Dixonii* Fernald Erythea 7:122. 1899.—In BOT. GAZ. 61:45. 1916 we noted the salient characteristics of *C. miniata* and its var. *crispula* (Piper) Nels. and Macbr. Recently our attention has been called to another variation by specimens sent us from Alberni, Vancouver Island, by Professor J. K. HENRY (his no. 9070 in the Gray Herbarium). These differ from typical material of *C. miniata* only in the very thick leaves. This maritime plant has been designated *C. Dixonii* (*loc. cit.*), the type being composed of decumbent or only slightly ascending plants that evidently represent the extreme condition of this variation. Piper 4957 from Ilwaco, Washington, is, like the Henry specimens, erect or nearly so. The coastal plants, therefore, seem to represent merely an ecological state of typical *C. miniata*, and may be treated varietally.

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